

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) A lithographic projection apparatus comprising:
a radiation system to supply a projection beam of radiation;
a support structure to ~~supporting~~ support a patterning structure which can be used to pattern the projection beam according to a desired pattern;
a substrate table to hold a substrate; ~~and~~
a projection system to project the patterned projection beam onto a target portion of the substrate, said projection system having a focal plane and comprising at least one adjustable refractive optical element capable of changing the shape of the focal plane; and
a controller, operative during an exposure to image the irradiated portion, to control said adjustable refractive optical element to change the shape of said focal plane to improve conformity to the surface contour of said exposure area.
2. (Original) Apparatus according to claim 1 wherein said controller comprises a memory to store data representative of said surface contour.
3. (Original) Apparatus according to claim 2 wherein said apparatus further comprises a measurement station having a substrate height measurement device operative in advance of an exposure to measure the substrate surface contour of at least one exposure area, for storage in said memory.
4. (Currently amended) Apparatus according to claim 2 wherein said ~~[[a]]~~ controller further comprises an interface to receive data representative of said surface contour from an external device.
5. (Currently amended) Apparatus according to claim 2 wherein said controller is operative to calculate desired adjustments to said adjustable refractive optical element for a given exposure in advance of that exposure.

6. (Original) Apparatus according to claim 1 wherein said apparatus further comprises a sensor to measure the position of the substrate surface at a plurality of points in said exposure area during an exposure.

7. (Currently amended) Apparatus according to claim 1 further comprising an actuator to move said ~~second object~~ substrate table to position the substrate at at least one of a desired position and a desired orientation and wherein said controller is also operative to control said actuator to position the substrate.

8. (Original) Apparatus according to claim 7 wherein said controller is adapted to control said actuator to effect low order corrections to bring the surface of said substrate at said exposure area into closer conformity with said focal plane and to control said adjustable element to effect high order corrections.

9. (Original) Apparatus according to claim 8 wherein said low order corrections comprise position and orientation corrections.

10. (Currently amended) Apparatus according to claim 8 wherein said controller is adapted to control said ~~positioning system~~ actuator to effect low order corrections to compensate for low order effects caused by adjustments of said adjustable refractive optical element.

11. (Currently amended) ~~Apparatus according to claim 1~~ A lithographic projection apparatus comprising:

a radiation system to supply a projection beam of radiation;

a support structure to support a patterning structure which can be used to pattern the projection beam according to a desired pattern;

a substrate table to hold a substrate;

a projection system to project the patterned beam onto a target portion of the substrate, said projection system having a focal plane and comprising at least one adjustable refractive optical element capable of changing the shape of the focal plane; and

a controller, operative during an exposure to image the irradiated portion, to control said adjustable refractive optical element to change the shape of said focal plane to improve

conformity to the surface contour of said exposure area, wherein said adjustable refractive optical element is a field-curvature correction lens.

12. (Canceled)
13. (Currently amended) A device manufacturing method comprising:
projecting a patterned beam of radiation onto a target portion of a layer of radiation sensitive material on a substrate; and
controlling an adjustable refractive optical element of a projection system used for the projecting, during said projecting, to change the shape of said focal plane to improve conformity to a surface contour of said target portion.
14. (Original) A method according to claim 13 further comprising measuring the surface contour of said target portion in advance of the projecting.
15. (Currently amended) A method according to claim 14 wherein said measuring is performed using at least one of a measurement station in [[the]] a lithographic apparatus and a separate qualification tool.
16. (Currently amended) A method according to claim 14 further comprising calculating adjustments to the adjustable refractive optical element in advance of projecting onto a particular target portion.
17. (Original) A method according to claim 16 wherein a plurality of similar target portions are imaged and adjustments calculated in said calculating are used in imaging a plurality of target portions.
18. (Original) A device manufactured according to the method of claim 13.
19. (New) Apparatus according to claim 1 wherein a magnification ratio of the projection system is not equal to unity.

20. (New) Apparatus according to claim 1 wherein the support structure and the substrate holder are movable relative to each other in a plane perpendicular to an optical axis of the apparatus.

21. (New) A method according to claim 13 wherein a magnification ratio of the projection system is not equal to unity.